

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of Group 1 (claims 1-24) in the reply filed on 6/16/09 is acknowledged. The traversal is on the ground(s) that because all the claims include the same technical feature and because the molar ratio represents special technical feature that is distinguished from the prior art. This is not found persuasive because although applicant is correct in stating that the Ponting reference does not disclose the molar ratios, upon further consideration Chen (US 5,925,395) recites a preservative having the appropriate ranges of molar ratios between ascorbic acid and calcium ions at 4:1.

The requirement is still deemed proper given that the claims do not provide a contribution over the prior art.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5, 7, 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen (US 5,925,395).

**Regarding Claim 1:** Chen discloses a preservative solution where the molar ratio between ascorbic acid/ascorbate ion and calcium salt/calcium ions is 0.5:1 to 4:1 [col. 3, lines 55-58] which can be in the form of a dip [col. 2, lines 15-24].

**Regarding Claims 5, 7, and 8:** Chen discloses where the calcium ions are derived from calcium hydroxide or calcium carbonate [col. 2, lines 61-67].

***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. **Claims 2, 11, 12, 15, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US 5,925,395)**

**Regarding Claim 2:** Chen discloses a preservative solution where the molar ratio between ascorbic acid/ascorbate ion and calcium salt/calcium ions is 0.5:1 to 4:1 [col. 3, lines 55-58] which can be in the form of a dip [col. 2, lines 15-24] but does not explicitly disclose where the molar ratio is between about 2.8:1 to about 3.5:1. However, one having ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Chen overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. *In re Malagari* 182 USPQ 549,553.

**Regarding Claims 11 and 12:** Chen discloses a preservative solution where the molar ratio between ascorbic acid/ascorbate ion and calcium salt/calcium ions is 0.5:1 to 4:1 [col. 3, lines 55-58] which can be in the form of a dip [col. 2, lines 15-24] and discloses ascorbic acid from 1% to 5% and calcium ion from .6% to 5% [col. 3, lines 48-49] but does not explicitly disclose where the calcium ions are present .4% to .68% or where the molar ratio is between about 2.8:1 to about 3.5:1. However, one having ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Chen overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. *In re Malagari* 182 USPQ 549,553.

**Regarding Claim 15, 17, and 18:** Chen discloses where the calcium ions are derived from calcium hydroxide or calcium carbonate [col. 2, lines 61-67].

**5. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US 5,925,395) as applied to claim 1 above and in further view of Gillota (US 2003/0104107) and Hekal et al. (US 2004/0071845).**

**Regarding Claims 3 and 4:** Chen discloses a preservation composition as discussed above but does not disclose where it contains magnesium ions and where the weight ratio between calcium ions and magnesium ions is between 5.4:1 and 11.3:1. However, Gillota discloses a composition containing a weight ratio of calcium to magnesium of between 5:1 and 15:1 [pg. 11; claim 1]. Further, Hekal discloses magnesium ions and specifically magnesium chloride in a preservative mixture [para 0017].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Chen, Gillota and Hekal before him or her to modify the composition of Chen to include the calcium to magnesium weight ratio of Gillota since magnesium is a suitable preserving agent and magnesium could provide its preservation properties in quantities smaller than that required for calcium or in the presence of calcium. Further, magnesium chloride as recited in Hekal is equivalent to anhydrous magnesium chloride since anhydrous merely means "absent water" and its hydrated form is normally indicated by the term "hexahydrate".

**6. Claims 6, 9, 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US 5,925,395) as applied to claims 1 and 11 above and in further view of Gawad et al. (US 6,054,160).**

**Regarding Claim 6:** Chen discloses a preservation composition as discussed above and discloses where the calcium ion is calcium chloride but does not explicitly disclose where the calcium

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ion could be derived from calcium chloride dihydrate. However, Gawad discloses an apple preservative composition that contains calcium chloride dihydrate [col.7, lines 60-67; col. 8, lines 1-15].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Chen and Gawad before him or her to modify the calcium source of Chen for the calcium chloride dihydrate of Gawad because it is essentially a hydrated version of calcium chloride and is well known as a preservative agent and functions well in Gawad as an additive in a composition for preserving produce.

**Regarding Claim 9:** Chen discloses a preservation composition as discussed above and discloses where the calcium ions are calcium hydroxide, calcium carbonate and mixtures of calcium sources [col. 2, lines 61-67, col. 3, lines 1-2] but does not explicitly disclose where the calcium ions are also derived from calcium chloride dihydrate. However, Gawad discloses an apple preservative composition that contains calcium chloride dihydrate [col.7, lines 60-67; col. 8, lines 1-15].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Chen and Gawad before him or her to include among the mixture of calcium sources of Chen, the calcium chloride dihydrate of Gawad, because it is essentially a hydrated version of calcium chloride and is well known as a preservative agent and functions well in Gawad as an additive in a composition for preserving produce.

**Regarding Claim 16:** Chen discloses a preservation composition as discussed above and discloses where the calcium ion is calcium chloride but does not explicitly disclose where the calcium ion could be derived from calcium chloride dihydrate. However, Gawad discloses an apple preservative composition that contains calcium chloride dihydrate [col.7, lines 60-67; col. 8, lines 1-15].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Chen and Gawad before him or her to modify the calcium source of Chen for the calcium chloride dihydrate of Gawad because it is essentially a hydrated version of calcium chloride and is well known as a preservative agent and functions well in Gawad as an additive in a composition for preserving produce.

**Regarding Claim 19:** Chen discloses a preservation composition as discussed above and discloses where the calcium ions are calcium hydroxide, calcium carbonate and mixtures of calcium sources [col. 2, lines 61-67, col. 3, lines 1-2] but does not explicitly disclose where the calcium ions are also derived from calcium chloride dihydrate. However, Gawad discloses an apple preservative composition that contains calcium chloride dihydrate [col.7, lines 60-67; col. 8, lines 1-15].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Chen and Gawad before him or her to include among the mixture of calcium sources of Chen, the calcium chloride dihydrate of Gawad, because it is essentially a hydrated version of calcium chloride and is well known as a preservative agent and functions well in Gawad as an additive in a composition for preserving produce.

**7. Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US 5,925,395) as applied to claims 1 and 11 above and in further view of Warren (US 5,055,313).**

**Regarding Claims 10 and 20:** Chen discloses a preservative solution as discussed above but does not disclose citric acid as an acidulant (pH adjuster). However, Warren discloses citric acid as an acidulant [col. 3, lines 10-16].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Chen and Warren before him or her to include the citric acid of Warren in order to bring the preservative pH to a level that would inhibit bacterial growth [col. 3, lines 6-8].

**8. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US 5,925,395) as applied to claim 11 above and in further view and Hekal et al. (US 2004/0071845).**

**Regarding Claims 13 and 14:** Chen discloses a preservative solution as discussed above but does not disclose magnesium ions having a concentration between 0.06% and .10% and does not disclose where the magnesium ion is derived from magnesium chloride. However, Hekal discloses a preservative solution containing .02% to saturation of magnesium salt [para. 0026] and where the magnesium ion can be in the form of magnesium chloride [para 0017].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Chen and Hekal before him or her to modify the preservative solution of Chen to include the magnesium chloride of Hekal because magnesium chloride is a suitable as a preservative of fresh produce by maintaining texture, flavor, color, crispness and appearance.

Although Hekal does not disclose the exact concentration range as recited in claim 13, one having ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Hekal overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. *In re Malagari* 182 USPQ 549,553.

**9. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US 5,925,395) and in further view and Gawad et al. (US 6,054,160) and Chen (US 5,939,117).**

**Regarding Claim 21:** Chen discloses a preservative solution as discussed above and where the preservative solution contains water ascorbic acid from .5% to 15% [col. 3, lines 49-51] and where the pH is from 3.5 to 7 [col. 4, lines 5-8] but does not disclose where the preservative contains .3% to 1% calcium chloride dehydrate, and 0.06% to 0.5% calcium hydroxide. However, Gawad discloses a preservative solution containing calcium chloride from 0.1% to 1.0% [col. 23, lines 9-11] and where calcium chloride is in its dihydrate form [col. 7, lines 60-62]. However, Chen "117" discloses a preservative solution containing ascorbic acid, calcium chloride, and calcium hydroxide, where the calcium hydroxide is 0.22% [col. 7, lines 10-12].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Chen, Gawad, and Chen "117" before him or her to modify the preservative of Chen to include the calcium chloride of Gawad and the calcium hydroxide of Chen "117" because these additives and in the disclosed amounts work to preserve fresh produce.

Further, although Chen does not disclose where ascorbic acid is present 5.6% to 9% one having ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Chen overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. *In re Malagari* 182 USPQ 549,553.

**Regarding Claim 22:** Chen discloses a preservative solution as discussed above and discloses where a preservative solution containing ascorbic acid and calcium chloride also contains .31% calcium carbonate [col. 5, lines 61-66].

Although Chen does not disclose the solution containing about .5% to 1% calcium carbonate, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the percentage for the intended application according to the desired level of

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calcium ions in the solution in proportion with the other sources of calcium in the solution and since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272.

**10. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US 5,925,395), Gawad et al. (US 6,054,160) and Chen (US 5,939,117) as applied to claim 21 above and in further view of Hekal et al. (US 2004/0071845).**

Chen discloses a preservative solution as discussed above but does not disclose magnesium ions having a concentration of .5%. However, Hekal discloses a preservative solution containing .5% to 20% magnesium [para. 0026] and where the magnesium ion can be in the form of magnesium chloride [para 0017]. Gawad discloses calcium chloride dihydrate and Chen “117” discloses calcium hydroxide as discussed above.

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Chen, Gawad, Chen “117” and Hekal before him or her to modify the preservative solution of Chen to include the magnesium chloride of Hekal because magnesium chloride is a suitable as a preservative of fresh produce by maintaining texture, flavor, color, crispness and appearance.

**11. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US 5,925,395), Gawad et al. (US 6,054,160) and Chen (US 5,939,117) as applied to claim 21 above and in further view of Warren (US 5,055,313).**

**Regarding Claim 24:** Chen discloses a preservative solution as discussed above but does not disclose citric acid as an acidulant (pH adjuster). However, Warren discloses citric acid as an acidulant [col. 3, lines 10-16]. Gawad discloses calcium chloride dihydrate and Chen “117” discloses calcium hydroxide as discussed above.



At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Chen and Warren before him or her to include the citric acid of Warren in order to bring the preservative pH to a level that would inhibit bacterial growth [col. 3, lines 6-8].

***Response to Arguments***

12. Applicant's arguments, see pgs 8-10, filed 6/16/09, with respect to the rejection(s) of claim(s) 1-24 under Warren (US 5,055,313) and secondary reference Chen (US 5,925,395) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of primary reference Chen (US 5,925,395) for claims 1, 2, 5, 7, 8, 11, 12, 15, 17, and 18; and in further view of secondary references Gillota (US 2003/0104107), Hekal et al. (US 2004/0071845), Warren (US 5,055,313) Gawad et al. (US 6,054,160) and Chen (US 5,939,117) for claims for claims 3, 4, 6, 9, 10, 13, 14, 16 and 19-24.

13. Further, although the rejection has been withdrawn regarding the rejection of claims 21-24 under Warren and Chen, this withdrawal was based upon inadequacies of the Warren as a primary reference. Examiner disagrees with applicants' arguments regarding claim 21-24, that Chen does not teach a preference for higher ratio of ascorbic acid to calcium ions. Chen repeatedly discloses preferences for ascorbic acid content to be higher than calcium content in its references to both molar ratios and weight ratios [col. 3, lines 55-63] and further different concentrations of the preservative solutions show ascorbic acid consistently is present in either nearly equal and more commonly in higher portions than calcium sources [col. 5-6 Tables 1 and 2].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FELICIA C. KING whose telephone number is (571)270-3733. The

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examiner can normally be reached on Mon-Thu 7:30 a.m.- 5:00 p.m.; Fri 7:30 a.m. - 4:00 p.m.

alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/F.K./

Examiner, Art Unit 1794

/JENNIFER MCNEIL/

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